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AUTHOR Duvall, Scott H.
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ABSTRACT

In a study conducted to compare the results of two methods of instruction for the use of periodical, book, and newspaper indexes, the traditional lecture approach and self-study guide were investigated. Two library science classes were divided into two groups, and then divided further according to sex and class status. A self-study guide was formulated, for one group while the other group received the traditional lectures. A posttest was administered to both groups twelve days after formal instruction began, and the results were measured by a statistical analysis of variance test. The results verified the null hypothesis that no difference existed between the two groups; therefore, the lecture and self-study methods could be interchanged for instruction in the use of indexes. A table of estimated means and an analysis of variance table are included. The self-study guide for the project is appended. (Author/DS)

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LIBRARY INSTRUCTION: TWO TEACHING METHODS

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by

Scott H. Duvall

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ABSTRACT

This study asked if there existed a significant difference in the learning acquired about the proper use of general periodical, book, and newspaper indexes between those participating in the lecture method of teaching as opposed to those participating in the self-study approach. Two introductory library science classes were randomly divided into two groups; each group was further stratified according to sex and class status in college. A self-study guide was formulated for the self-study group; a post-test was administered to both groups twelve days after formal instruction began. The post-test grades were measured by a statistical analysis of variance test; the results bore out the null hypothesis that no difference existed between the two groups on any level. The author concluded that the lecture and the self-study could be interchangeable for teaching the use of the indexes. There were, however, some internal weaknesses and limitations to this study.

PREFACE

With the enormity of present day publication it is becoming increasingly difficult to keep abreast of currently published material, even in limited fields. The inescapable conclusion is that a person must effectively learn how to find his way through the jungle of printed material. Hence, in teaching the use of periodical, book, and newspaper indexes the teacher must use whatever method will work. The purpose of this study was to compare the results of two teaching methods, a traditional lecture approach and a self-study guide. I wish to extend my appreciation to the School of Library and Information Sciences for giving the opportunity of teaching Library Science 111. And, as always, I am grateful to my wife Jayne, for her support and helpful suggestions.

TABLE OF CONTENTS

	Page
PREFACE	ii
LIST OF TABLES	v
Chapter	
1. INTRODUCTION	1
PROBLEM STATEMENT	3
GENERAL PROCEDURES	3
HYPOTHESIS	4
2. LITERATURE REVIEW	5
3. DATA COLLECTION	13
APPROACH TO THE PROBLEM	13
PREPARATION OF THE INSTRUMENT	13
COLLECTION TECHNIQUES	15
POPULATION AND SAMPLING	15
POST-TEST	16
ANALYSIS OF POST-TEST RETURNS	17
4. ANALYSIS OF DATA	18
5. CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS	21
SUMMARY	21
CONCLUSIONS	21
IMPLICATIONS AND LIMITATIONS	23
RECOMMENDATIONS	25
APPENDIXES	
A. SELF-STUDY GUIDE TO PERIODICAL, BOOK, AND NEWSPAPER INDEXES	27

B. POST - TEST 40

SOURCES CONSULTED 44

LIST OF TABLES

Table		Page
1.	Analysis of Variance Table	17
2.	Table of Estimated Means	18

Chapter 1

INTRODUCTION

In past years, research in education has followed an erratic course of action. It has focused on one aspect of education and then on another; consistency has been hard to come by. Consequently, educators have heaped their praise upon whatever happened to be the accepted teaching method, only to see one vogue give way to another. In so doing professional educators became so concerned with the means of education that in some cases these means became ends in themselves. Consider, for example, the behavioral objective. This educational idea was first designed to enhance teaching effectiveness by concentrating on the end, the final student behavior; in some cases, however, the good idea devolved into an end in itself. Again, witness the preoccupation some teachers have had with the concept of role-playing. Or consider the notion of small group participation as opposed to a lecture. At one time or another each of these teaching methods has served as the center prevailing educational opinion.

The tenor of the foregoing is not to be critical of any of these teaching methods. For these methods are the means whereby students are educated. As such, one cannot criticize the effectiveness of specific methods in certain situations. It is only when the methods replace the students as the focus of attention that trouble begins.

The purpose of this study was to consider two teaching methods; but it in no way began with the preconception that one method was necessarily better than the other. The true teacher, one who deems himself worthy of the profession, must be the master of any technique which will enhance his teaching effectiveness. "The means by which we teach need to be as varied as the means by which anyone teaches . . . we should look for the best methods for our peculiar circumstances."[1]

In education the concern is with learning and, therefore, with the teaching process. Hence, the circumstances peculiar to library instruction are those of educating the library student in the use of library reference tools, whether these be the card catalog, Reader's Guide to Periodical Literature, or the Oxford English Dictionary. If the student is to learn to use these tools he must be instructed so he internalizes what he is taught on a cognitive and an affective level. Too many students are " . . . totally unaware of the wealth of materials which could be of use to them."[2]

This particular study did not commence with the presupposition that either of these methods was better than the other. It was only a comparison of two of the many teaching methods which could be used in connection with a narrow, specified subject field.

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[1]Charles Crossley, "Education in Literature and Library Use," Library World, 71 (May, 1970), 345.

[2]Vera V. Melum, "Library Orientation in the College and University," Wilson Library Bulletin, 46 (September, 1971), 59. At the time of this writing Vera V. Melum was a librarian in the Division of Undergraduate Services of the University Libraries, Northern Illinois University.

" . . . we presently know of no one method of instruction which is best for all situations, or all students, or all subject matter, or for all instructors."[1] It is doubtful that, even in 1975, educational methodology has progressed to the point of claiming the overall superiority of one technique over another.

Problem Statement

This study dealt with the effect of two types of teaching methods upon achievement in the use of periodical, book, and newspaper indexes. The question to be answered in this research study was: Is there a significant difference in the learning acquired about the proper use of general periodical, book, and newspaper indexes between those participating in the lecture method of teaching as opposed to those participating in the self-study method? During the Winter Semester of 1975, the members of two Library Science 111 classes, "How to Use the B. Y. U. Library," (hereinafter L. I. S. 111) were used as participants in the study. The members of the classes were taught the use of the types of indexes mentioned; no effort was made to teach the use of periodical abstracts. One further delimitation is that the population consisted only of day undergraduate students; the night class was excluded.

General Procedures

The general procedures employed were as follows:

1. The library science classes were randomly divided into

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[1] Claude E. Buxton, College Teaching: A Psychologist's View, (New York: Harcourt, Brace & Co., 1956), p. 363. At the time of this writing Buxton was of Yale University.

two groups; each group was stratified according to sex and class to reduce the contamination and lend validity to the study.

2. The use of the indexes was taught by the lecture method and the self-study method.

3. The self-study guide was designed to build upon the prototype of Reader's Guide to Periodical Literature.

4. The self-study guide was pretested to eliminate any ambiguities, inconsistencies, or other defects.

5. A post-test was administered simultaneously to both groups immediately after the period allowed for learning the use of the indexes.

6. The data from the test were analyzed in terms of the sub-populations of sex and class; an Anovar F-Test was used to determine the significance of variance between the mean scores of the post-test.[1]

Hypothesis

The null hypothesis of this study was that no difference existed in the learning acquired about the use of periodical, book, and newspaper indexes between the lecture group and the self-study group.

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[1]See Chapter 3 for a detailed outline of methodology.

Chapter 2

LITERATURE REVIEW

To put the problem of teaching effectiveness into perspective, a review of the pertinent literature was helpful. The review clarified the problem and provided a more definitive comprehension of the purpose of this study. Even though various teaching methods were advocated for the field of education as a whole, a relatively small amount of time has been devoted to meaningful studies in library instruction. Indeed, the literature revealed no research in the teaching of specific topic such as the matter with which this study was concerned.

In this brief review the various sources were grouped in four topics according to the parts of the study to which they pertained. First, the lecture method of teaching with its advantages and disadvantages was pertinent to this study. Individualized instruction provided another route to follow with its weaknesses and strengths. Third, the validity of non-experimental studies of this type was mentioned in the literature. Finally, the library literature revealed the existence of large gaps that needed to be developed in library instruction theory and experiment.

It has been said that a lecture is the means whereby the contents of the lecturers notes are transferred to the notebooks of the students without passing through the minds of either. This last statement exemplified the attitude educators have held in

appraising the advantages and/or disadvantages of the lecture method of teaching. Yet, the question in point remained: What were the advantages of the lecture system of education?

In his article, D. H. Revill listed five advantages of the lecture method. First, he maintained that an adept teacher could communicate enthusiasm to his students via this mode of teaching. With enthusiasm a teacher could lead his students down the path of a proper education. Second, a lecture could have an organizing or integrating function to perform in the context of course content. Third, one could adapt a lecture to any size of audience; a lecture could actually be independent of the size of the class. Fourth, a lecture was economical of time and effort; it took more time to prepare a course by another method. Finally, if the teacher was willing to spend the time, a lecture could be made utterly free from irrelevance.[1] "We must use the lecture, in certain circumstances, and we need not feel ashamed to do so, because it can be the most effective and, certainly the most economical means of presentation."[2]

The previous advantages, however, had to be counterbalanced by the disadvantages of the lecture approach to education. For it was important to understand that each student came to a lecture in a different frame of mind than did his classmate. Students " . . . enter a college or university with different

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[1] D. H. Revill, "Teaching Methods in the Library: A Survey From the Educational Viewpoint," Library World, 71 (February, 1970), 243.

[2] Crossley, p. 345.

backgrounds, different interests, different priorities, different abilities, and, very often, different learning styles. We must, if we are too succeed in teaching them, design a program that is sensitive to their differences."[1]

Some teachers, however, know only how to structure a class around the lecture. Hence, the lecture has programmed students to receive information from a dispenser of knowledge.[2] The dispenser of knowledge, the teacher, who used nothing except the lecture approach produced nothing more than a passive learner whose education taught him nothing more than rote memorization of lecture notes. Learning was not personalized with the teacher as a dispenser of knowledge.

Hence, the disadvantages of the lecture mode of teaching have prompted educational researchers to laud the effectiveness and sing the praises of individualized instruction. The technological advances which have been made in programmed instruction have greatly impressed educators. Individualized instruction and programmed instruction, however, are not synonymous. Programmed instruction has usually been interpreted in the context

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[1]Robert M. Diamond, "Individualizing Student Learning," Current Issues in Higher Education, 28 (1973), 143. At the time of this writing, Diamond was on the faculty at Syracuse University. Theodore S. Fremont, Assistant Professor at Wichita State University, also made a study on student differences. See Theodore S. Fremont, "Teaching and Student Differences," Improving College and University Teaching, 12 (Winter, 1974), 28.

[2]Fred Winston, "Individualized Instruction," Instructor, 83 (December, 1973), 81. At the time of this writing Winston was Media Specialist, District 26, Board of Education, New York.

of computers and teaching machines; individualized instruction includes all types of personalized education and is therefore much broader in its scope. The self-guided exercise with which this study was concerned was a type of individualized instruction. In short, library instruction has been superficial, unorganized, and unfocused as to classroom needs. These were the reasons Leslie Woelflin, of the College of Education at the University of Oklahoma, cited as justification for individualized instruction in library instruction.[1]

Again, in his article on teaching methods in library instruction, Revill also indicated some advantages of individualized instruction: 1) the student learned at his own pace; 2) this type of instruction usually provided for instant feedback; 3) teachers had a record of performance to which they could refer; 4) a person's errors and successes were unkown to the rest of the class; 5) the student avoided any interpersonal relationship with the lecturer.[2]

But the results of many individualized instruction programs belied the theory behind them. The advantages listed above have rarely been found in full in any personalized approach to education. According to Richard W. Burns, Professor of Education at the University of Texas at El Paso, more often than not, only the time factor, the idea that the student could work at his own pace, was allowed to vary. The time factor was hardly the most important

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[1]Leslie Woelflin, "Instruction in the Undergraduate Library-College," Learning Today, 5 (Winter, 1972), 40.

[2]Revill, p. 247.

feature of individualized instruction in Burns' opinion.[1]

In a word, an argument existed in the literature as to the advantages and disadvantages of the lecture method and the self-study manner of teaching. The view of the teaching profession was unclear as to which might be better. Some saw the teacher as a "dispenser of knowledge"; others perceived him as a "manager of learning."[2] Why could he not be both?

Proceeding to a discussion of the validity of such educational research, the library literature revealed nothing concerning any distinction in learning abilities between any type of group; educational and psychological contributions were those studies upon which the author relied. Vladimir Pishkin and Diane J. Willis, of the V.A. Hospital, University of Oklahoma College of Medicine, for example, found no significant differences between boys and girls in their study of the learning abilities of underprivileged children.[3] But these were children. Fremont cited some differences between male and female adult students in his study.[4] Furthermore, educators have generally assumed that adult female students performed better than adult male students in the use of a self-study guide. Although this was only an

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[1]Richard W. Burns, "Learning Awareness of Success With Learning Packages," Educational Technology, 13 (August, 1973), 31.

[2]Winston, p. 81.

[3]Vladimir Pishkin and Diane J. Willis, "Age, Sex, and Socioeconomic Factors in Concept Identification," Psychology in the Schools, 11 (January, 1974), 85-90.

[4]Fremont, p. 28.

assumption, at least one study bore it out.[1]

Margaret Taylor, lecturer in the Graduate School of Library Studies at the University of Hawaii, performed an experiment in 1972 which was related to this study. As lecturer, she devised a programmed study guide to enable her to teach the basic graduate reference class in library school. She gave one class the programmed guide and another class was taught the same material by a different teacher in the traditional lecture approach. Her results indicated that the class which used the self-study guide fared as well as or better than the other class.[2] She neglected, however, to make any stratifications of sub-populations; she simply compared one class to the other.

Many such studies have been criticized in light of the Hawthorne effect. Simply stated, this referred to the possibility that the success of a new method of teaching, especially one which required the individual initiative of the student, was due to the novelty of the situation.[3] This novelty effect, was definitely a problem to be considered; it is doubtful, however, if the author's study could be criticized in light of the Hawthorne effect. The concept of using a self-study guide was carefully explained; as much time as possible was given to both groups to digest the material

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[1]Statement by Howard C. Nielson, statistician, in a personal interview, Provo, Utah, March 13, 1975. He indicated that a departmental study had been completed concerning the feasibility of a self-study approach to the Statistics 221 class at Brigham Young University. Females performed better than males.

[2]Margaret Taylor, "Self-Study Approach to Reference Sources," Journal of Education for Librarianship, 12 (Spring, 1972), 240-246.

[3]Fred P. Barnes, Research for the Practitioner in Education, (Washington D. C.: National Education Association, 1964), p. 62.

and the groups were selected according to the proportional allocational method.[1] The literature revealed that sampling was the key to avoid contamination.

Moreover, Steven Linder and Carol Whitehurst performed an experiment the results of which did not " . . . support the hypothesis that the favorable student attitudes engendered toward personalized instruction can be explained as a novelty effect."[2] The weight of their study lent some credence to the author's study.

As a final point in this literature review, it was difficult to not miss the large gap left to be filled in the area of library instruction. Consider, for instance, Allan Mirwis' ten year bibliography on the topic of academic library instruction. Most of the books and articles in this bibliography referred either to library education for graduate students in library school, or to a librarian's sudden discovery that his library needed better library instruction on the undergraduate level. Very few of these sources were concrete empirical studies on specific problems in library instruction.[3] This is not to say that statistics could

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[1]William Wiersma, Research Methods in Education, (Philadelphia: J. B. Lippincott, 1969), pp. 263-264.

[2]Steven Linder and Carol Whitehurst, "Is There a Novelty Effect on Student Attitudes Toward Personalized Instruction?," The Journal of Experimental Education, 42 (Fall, 1973), 44. At the time of this writing Linder and Whitehurst were associated with the Dept. of Psychology, C.W. Post College, Long Island University, Greenvale, New York.

[3]Allan Mirwis, "Academic Library Instruction: A Bibliography, 1960-1970," Drexel Library Quarterly, 7 (July and October, 1971), 327-335. At the time of this writing Mirwis was a Doctoral student at Indiana University in Bloomington, Indiana.

be the savior of library instruction; far from it. But the literature exhibited librarians to be amateurs with statistical, educational research.

Library instruction is important; but the librarian does not know to whom the responsiblilty belongs to teach the use of the library. "If it is not [the librarian's responsibility], our knowledge [italics in the original] of the problem makes us guilty of negligence if we make no effort to insist upon a solution."[1] The author hoped this study made an honest effort to improve the means by which to effectively teach the use of general periodical, book, and newspaper indexes.

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[1]Millicent C. Palmer, "Academic Library Instruction: Problems and Principles," Tennessee Librarian, 25 (Winter, 1973), 17.

Chapter 3

DATA COLLECTION

Approach to the Problem

The basic skills necessary for a mastery of periodical, book, and newspaper indexes were skills which did not command a certain teaching method. These skills, however, have been traditionally taught by the lecture method. But the purpose of this study was to ascertain the differences of learning acquired between the teaching of these indexes by the lecture method and the self-study method. Thus, the approach to the problem was to design a self-study guide, provide for a post-test, and statistically divide the two L. I. S. 111 classes into two broad groups; each group was further stratified into two other sub-populations by sex and by class.

Preparation of the Instrument

The instrument in this study consisted of two parts. The first part was composed of the self-study guide; the second part was the post-test. The self-study guide was formulated with the idea that the students would personally interact with each of the indexes. It was further fashioned to teach the student not only how to use the specific index but to thereby learn what he could expect from any index of that particular type.

Reader's Guide to Periodical Literature served as the

prototype, the example from which to teach the other periodical, book, and newspaper indexes. Inasmuch as most indexes were published by H. W. Wilson Company, the format of each index was similar; Reader's Guide to Periodical Literature was the index with which most of the students were familiar. The author therefore decided to use it as the major example from which to proceed to a further investigation of the other more scholarly indexes.[1]

To prepare the self-study guide, each question was predicated upon the student having mastered the previous question. Such a mastery, however, was built into the study guide itself by use of the technique of repetition. The answers to the questions were implicit to the study guide and were re-emphasized throughout. The self-study guide was pre-tested by use of several fellow graduate students in the School of Library and Information Sciences at Brigham Young University; they consented to read it and criticize it. Jayne Duvall, the author's wife, having had no previous experience with the periodical, book, and newspaper indexes, performed the service of a pre-test as she followed the study guide step by step. From these two types of pre-testing the self-study guide was freed from as many ambiguities as possible.

The second part of the preparation of the instrument involved the preparation of the post-test. The School of Library and Information Sciences allowed the author to review several types of tests which had been used in previous L. I. S. 111 classes to test students on their knowledge of periodical, book, and newspaper

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[1] See Appendix A.

indexes. After careful perusal of these sample tests and after thought as to the direction of the lecture and the self-study guide, three types of questions were incorporated into the post-test. First, the post-test included questions designed to examine the student's comprehension of the types of activities he could expect from any periodical, book, or newspaper index. Next, questions which tried the student's understanding of the index format were included. Finally, there were questions in the post-test which asked the student to match an index with a specific topic.[1]

Collection Techniques

Population and Sampling. The students of two separate sections of L. I. S. 111 classes participated in the study. Section one met on Mondays and Wednesdays from 12:00 to 1:00 P. M. Section two met on Tuesdays and Thursdays from 8:00 to 9:00 A. M. There were twenty-two students who registered and attended the first section; twenty-six students registered and attended the second section. Inasmuch as the author could not influence the registration process, the only randomness that occurred with the entire population occurred with each student's selection of L. I. S. 111. The population was not a random sample of the students at Brigham Young University.

The population, then, consisted of forty-eight students. The names, sex, and class status in college were taken to the

[1] See Appendix B.

Department of Statistics at Brigham Young University. Howard Nielson, statistician, randomly selected twenty-four students to participate in the self-study group and twenty-four students to participate in the lecture method of instruction. The population was not homogeneous. Nielson, therefore, used a stratified sampling technique, in the process of his random assignments, to stratify the two groups into the sub-populations of sex and class status in college. The exact stratified sampling technique used was the proportional allocation method. This technique gave a proportionate number of males and females in each group; it also contributed a proportionate number of freshmen, sophomores, juniors, and seniors in each group.

The purpose of stratification was to avoid contamination and to make the results more meaningful in terms of analysis. The contamination the author avoided with the stratified technique was to overcome the difference in the meeting times of the two classes by selecting a proportionate number of each level from each class to participate in the self-study and lecture method of instruction. The results were made more meaningful in that analysis was made on several levels instead of simply two, lecture vs. self-study.

Post-Test. The post-test was adminstered twelve days after the day on which the self-study guide was presented and the lecture began. This study was non-experimental in its nature; that is, neither the lecture participants nor the self-study group could be said to be a control group. Nevertheless, this

non-experimental design patterned itself after the "Post-Test Only Control Group Design."[1] No pre-test was given to either group; for this situation it was not desirable nor applicable. With the post-test only approach the results appeared to be very high in internal validity; the random assignment of students to the self-study group and the lecture group ruled out selection bias.

Analysis of Post-Test Returns

Upon completion of the lecture material and the self-study guide covering periodical, book, and newspaper indexes, the results of the forty-five question post-test were subjected to a computer program Anovar F-Test. This analysis of variance took the scores of each sub-population and measured the variance of mean scores at an .05 level of significance.[2]

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[1] Wiersma, pp. 228-230.

[2] See Table 1 for the Analysis of Variance Table. See Table 2 for a categorization of the estimated mean scores for each sub-population.

Chapter 4

ANALYSIS OF DATA

The null hypothesis of this study was that no difference existed in the learning acquired about the use periodical, book, and newspaper indexes between the two groups for any source. The results of the Anovar F-Test indicated that the null hypothesis was accepted. At an .05 level significance the F-ratio had to be equal to or greater than 4.134 to be of any significance. Table 1 shows that there was no degree of significance for any source.

To further explain the table on page 19, when the full model was run one cell was missing. The missing cell allowed only two degrees of freedom for the three way interaction of sex - class - method. Hence a test was run on the three way interaction of sex - class - method to determine any degree of significance. The test was $F = \frac{3.1629}{10.726}$. The result was .294 or less than 4.134. Therefore, no degree of significance existed. Since the three way interaction was non-significant it was pooled with error. Table 1 resulted where each term was ordered last in the model to adjust for all of the others. It was necessary to order each term last because an imbalance in the design existed. This imbalance was created because there of necessity had to be a different number of people in each cell. The samples were proportionate but not equal.

Table 1

Analysis of Variance Table

Sources	df[a]	SS[b]	MS[c]	F Ratio[d]
Method	1	7.9138	2.5926	
Sex	1	2.5926	8.4466	.252[e]
Class	3	25.34	5.822	.821[e]
Sex - Class	3	17.466	15.756	.566[e]
Method	1	15.456	7.3395	1.53[e]
Sex - Method	1	7.3395	7.3395	.713[e]
Class - Method	3	33.795	11.265	1.094[e]
Error	35	360.295	10.294	

[a]Indicated Degrees of Freedom

[b]Indicated Sum of Squares

[c]Indicated Mean Squares

[d]Indicated the significance. Had to be equal to or greater than 4.134

[e]Indicated the Analysis of Variance was insignificant at the .05 level of significance.

The analysis of the data clearly indicated that no degree of significance existed among the test scores for either the self-study group or the lecture group on any level of stratification. Of further interest, the table on the next page demonstrated a categorization of estimated mean scores; the categorization consisted of every level on which the study was accomplished.

Table 2

Table of Estimated Means

Sub-population	Estimated Mean
Males	40.642
Females	40.731
Freshmen	40.496
Sophomores	41.400
Juniors	39.728
Seniors	41.250
Male-Freshmen	40.083
Male-Sophomores	42.500
Male-Juniors	38.608
Male-Seniors	41.375
Female-Freshmen	40.909
Female-Sophomores	40.301
Female-Juniors	40.849
Female-Seniors	41.000
Self-Study	41.045
Lecture	40.367
Male-Self-Study	41.005
Male-Lecture	40.279
Female-Self-Study	41.100
Female-Lecture	40.454
Freshmen-Self-Study	39.750
Freshmen-Lecture	41.242
Sophomores-Self-Study	42.301
Sophomores-Lecture	40.500
Juniors-Self-Study	39.983
Juniors-Lecture	39.474
Seniors-Self-Study	43.250
Seniors-Lecture	40.250

Chapter 5

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

Summary

Briefly stated, this study asked if there existed a significant difference in the learning acquired about the proper use of general periodical, book, and newpaper indexes between those participating in the lecture method of teaching as opposed to those participating in the self-study method. Two L.I.S. 111 classes were randomly divided into two groups; each group was further stratified according to sex and class. A self-study guided exercise was devised for one group; it was formulated in the hope that this group would learn the same material as the lecture group. The post-test grades were measured by a statistical Analysis of Variance Test; the results bore out the null hypothesis that no difference existed between the two groups on any level.

Conclusions

The conclusions one could draw from these results pointed to the fact that no significant differences existed between the two broad groups of lecture and self-study. Furthermore, the results indicated that females performed as well as males and vice versa. Moreover, each class performed on the post-test as well as another.

In past years, research in education, and especially

research in learning theory, has indeed followed an erratic course of action. Typical of this phenomenon has been the overriding emphasis educators have placed on the benefits of individualized instruction. The results of this study bring one to the conclusion that at least in teaching the use periodical, book, and newspaper indexes the lecture was as effective as the self-study guide. Hence, one should not be too quick to deride the traditional method of lecturing to a class.

But the opposite is also true. Assuming the self-study guide was accurate, assuming it was a valid manner of learning the use of the indexes, there may be occasions in which the teacher or supervisor could make use it. If the teacher is unavailable, for instance, for whatever reason, the self-study guide could be used as a back-up medium. On the other hand, students tend to miss class at times. In such instances it can be concluded that the self-study would serve as a tool for making up lost work. In addition, the self-study guide could be used as the basis for a modularized system for teaching the use of the library, in which this study could serve as one of the modules. Further study would of course have to be accomplished in other areas.

In all cases, the educator is concerned with learning; he must concern himself with the teaching process. Revill listed the advantages of both the lecture method and the self-study approach. This study indicated that for teaching the use of the general indexes the advantages of one equaled the advantages of the other.

Implications and Limitations

Yet, several internal weaknesses to the study itself somewhat limited its value. One disadvantage was with the population. There a total of forty-eight students in the population; twenty-four of them were randomly selected to participate in the self-study group which left twenty-four for the lecture group. But inasmuch as no control over the registration process was possible, the author could not generalize the results of his study to the broad population of Brigham Young University students. This was a definite limitation.

In addition, after the onset of the experiment, after the beginning of instruction, the question occurred that one forty-five question post-test might not have been an adequate judgment of performance. The closeness of the mean scores as indicated by Table 2 suggested either a longer examination or perhaps two examinations might have elicited a more definitive answer to the problem.

Another question which occured concerning the post-test was whether the objectives were clarified before the onset of the experiment. The post-test was written after the self-study guide and lectures had been prepared. It might have been more beneficial to write the post-test first to help clarify the objectives of the experiment.

Hence, it was true that for one particular group of forty-eight students during twelve days of Winter Semester, 1975, at Brigham Young University, no differences appeared in the learning acquired between the two broad groups of self-study and lecture.

Moreover, for those forty-eight students no significant differences existed on any level of stratification. But this study was not probably capable of being generalized to other students in other L. I. S. 111 classes at a future time.

The author further concluded that a limitation occurred as he attempted to apply the quantitative method of statistical analysis to the qualitative problem of learning. True, the results as delineated above were statistically sound; but the simple fact that they were incapable of generalization revealed to the author the conclusion that teaching methods involved human beings; learning was therefore more complex than statistical analysis could reveal.

William McKeachie, educational psychologist at the University of Michigan at Ann Arbor, concluded very much the same conclusions. He noted in his 1974 review of research accomplished in instructional psychology since 1972 that ". . . each one of the principles confidently enunciated by Skinner in The Science of Learning and the Art of Teaching now turns out to be untrue."[1] Not that the principles are false; but ". . . rather the attempt to make a really systematic effort of application has revealed that what we psychologists took to be verities are principles that hold only under limited conditions."[2]

Hence, the problem of generalization in educational research lies at the heart of the feelings of frustration the educational

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[1]Wilbert J. McKeachie, "Instructional Psychology," Annual Review of Psychology, 25 (1974), 186.

[2]Ibid.

researcher sometimes feels. Meaningful learning is complex. "But the complexity, so frustrating to those who wish to prescribe educational methods, is a reminder of the fascinating uniqueness of the learner."[1]

Recommendations

This study on periodical, book, and newspaper indexes does uave a useful role in library instruction. On the one hand, the author concluded that the results of no difference acquired in learning between the self-study group and the lecture group were statistically sound. On the other hand, given the internal weaknesses of no random sampling of the total Brigham Young University population, the resulting impossibility of generalization, and the knowledge that statistical research does have its limitations, especially where the learner is concerned, the study demonstrated the necessity to guard against easy oversimplifications.

The author recommends that future instructors of L. I. S. 111 or its equivalent use this study as a springboard from which to dealve into the complexity of library instruction. Use it to help in the perception of new dimensions and finer differentiations in the education process. Moreover, the author recommends that more attention be given to the current research in educational psychology. Finally, this study could be used as a starting point from which to structure the perceptions of the learner and the teacher-student relationship. The author feels that this interactive teacher-student relationship is the foundation upon

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[1]Ibid., p. 187.

which learning needs are met. "In this contact lies the real satisfaction of the whole operation of giving tuition in the use of libraries and of subject literature."[1] With this beginning in the limited area of general periodical, book, and newspaper indexes the author hopes that this study will make an active contribution to the field of librarianship, both as a viable study in itself and as a guard against oversimplification.

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[1]Crossley, p. 346.

APPENDIX A

Self-Study Guide to Periodical, Book, and Newspaper Indexes

So far you have learned to find only half of the literature in the library. Through use of the Card Catalog only, one will overlook the vast amount of information provided in the periodical literature. One of the distinguishing features about most serials is that they consist of a number of different articles, by different authors, most of which are not ever published in book form. Hence, some sort of system is needed in order that one might have access to these articles.

By the same token, the Card Catalog will not index reviews to books, essays within books written by several authors on different subjects of literature, or bibliographies which appear in the context of periodical articles. Thus, one must be aware of the several book indexes which are available for use.

This brings us to the examination of the periodical indexes, the titles of which appear on the next page. Look at the titles. Do you recognize any of them? You hopefully will not only recognize them but be able to use them by the time you have completed this study guide.

What is an Index?

Generally an index is a publication which appears separately from the publications which it indexes. It is a guide to the contents of other publications, in this case, periodicals, books, and newspapers. These indexes appear at regular intervals in pamphlet form and are usually cumulated anually in book form.

Instructions

Look at the index titles on the next page. Then, begin by answering question #1 on the following page. It is necessary for you to continue answering the questions in sequence as they are designed to build upon the previous question. You are urged to continue at you own pace until you have completed the study guide. After completion of the guide review any parts which you may not have completely understood. Good Luck!

PERIODICAL INDEXES

Poole's Index Ref. 050/P78
Nineteenth Century Reader's Guide Ref. 050/R22
Reader's Guide to Periodical Literature Ref. 050.22/R22
Education Index Ref. 370/Ed82
International Index Ref. 050/In8
Social Sciences and Humanities Index Ref. 050/In8
Social Sciences Index Ref. 050/In8
Humanities Index Ref. 050/In8

Business Periodicals Index Ref. 1 050/B96
Public Affairs Information Services Ref. 1 300.16/P96

Applied Science and Technology Index Ref. 2 505/Ap581
Biological and Agricultural Sciences Index Ref. 2 630/Ag83

Art Index Ref. 5 700/Ar75
Music Index Ref. 5 780/M973

BOOK AND NEWSPAPER INDEXES

New York Times Index Ref. 071/Nu87
Biography Index Ref. 920.0016/B52
Book Review Digest Ref. 050/B86
Book Review Index Ref. 050/B641
Essay and General Literature Index Ref. 800.16/ES73

1. Begin by looking at an index with which you are probably already familiar: Reader's Guide to Periodical Literature. This is an index to the popular, general magazines in the United States.

   Look at one of the most recent issues. (pamphlet form in a green or red binder) What is the full title as it is written on the cover?

2. What does this tell you about its scope?

   Its coverage?

   According to the prefatory note are there any limitations to the type of periodicals it indexes?

3. The prefatory pages to Readers Guide contain:
   a. a statement of the basis for selection of periodicals to be indexed.
   b. list of periodicals indexed
   c. abbreviations of periodicals indexed as they appear in the index itself
   d. abbreviations and symbols used in each index

   Can you locate each of these sections?

4. Is the periodical, Journal of American Folklore indexed in Reader's Guide? (see 'b' above)

   Why or why not?

5. Who publishes Reader's Guide?

6. Reader's Guide is published every two weeks and cumulated quarterly.
   When did it begin publication? (see volume 1)

7. In the Card Catalog, all author, title, and subject entries are included in one alphabet.

   Is it the same for Reader's Guide? (see preface to the bound, volume 32: "Suggestions for the Use of Reader's Guide")

8. Are there any title entries at all in Reader's Guide? (see "Suggestions" - Arrangement)

For what types of literature does one find title entries? (Read the rest of the page)

9. Are there any cross references?

   What types?

10. Using vol. 31 of Reader's Guide, (March 1971 - February 1972) find a citation for an article under the subject heading RUG PADS.
    What is the title of the article?

    In what periodical is this article found?

    Is the periodical title abbreviated?
    If so, where is the list of abbreviations for periodicals indexed? (see question # 3)

    This article is found in volume 172 of Good H.
    It is found on page 6 of Good H.
    It is found in the February, 1971 issue of volume 172 of Good H.

11. Sometimes certain abbreviations and symbols are used within these citations in order to save space.

    What do the abbreviations "bibliog," "por," and "il" stand for?

    What does the symbol + stand for? (Do you remember where the list of abbreviations are found?)

12. Now, turn to another citation of your own choice. Can you successfully identify the different parts of the citation? Copy the information.

    title:
    author:
    periodical:
    volume:
    pages:
    date:
    abbreviations and symbols:

You now understand the manner in which articles can be found in different popular periodicals which are published in the U.S. As a general rule, after finding the citations on any subject or author of your own choice in you own research COPY THE CITATION. Be certain of the bibliographic information by referring to the preface.

Now, to find the periodical in the library, go to the B. Y. U. Periodicals and Serials Catalog. It is a large, light blue book which lies on the index tables or on every reference desk. It contains a list of all the periodicals which the B. Y. U. library holds. It gives the call number, level number and certain other information. There are four copies of this book on top of the general reference desk.

13. Take the citation you found in # 10. Look up the title of the periodical, NOT THE TITLE OF THE ARTICLE, in its proper alphabetical place in the Periodicals and Serials Catalog.

What page are you on?

14. If you are not on page 327, do it again. (ALWAYS BE SURE TO RECHECK YOUR SPELLING)
What is the call number for Good Housekeeping? (directly underneath the title)

With what volume and at what date did B. Y. U. begin receiving this periodical?

Are we lacking any volumes?

What level is it found on? (Good Housekeeping)

Are any of the volumes incomplete? (INC) For example, see Good Fellowship

Look at the bottom of page of page 327. If you are having any problems in using this catalog refer to those directions.

15. Now, look up the periodical of your own choice. (# 12)

Is it here at B. Y. U.?

Can you identify the information provided in the Periodicals and Serials Catalog?

16. Using Reader's Guide as an example, look next at International Index and the Social Sciences and Humanities. (Location? refer to page 2 of the study guide)

Remember that Reader's Guide indexed popular periodicals. What type of periodicals do these indexes index?

How can you tell?

What is the relationship between these two indexes?

Who is the publisher?

From your experience with Reader's Guide, does this indicate anything about the general format to be followed in these indexes?

17. Can you tell what periodicals are indexed in Social Sciences and Humanities Index? How?

Abbreviations?

Statement of selection etc.? (see # 3)

18. Compared to Reader's Guide, what type of periodicals are indexed in these two indexes, scholarly or popular?

What subjects are in the social sciences? (see the prefatory note of vol. 27)

The humanities?

19. How is the Social Sciences and Humanities Index arranged? (author, subject, title?) Read the prefatory note.

20. International Index began publication in 1907. In what year was its name changed to Social Sciences and Humanities Index? (See Vol. 19)

21. Look up an article on a subject of your own choice.

Can you identify the different parts to the citation?

Author?
Title of article?
Title of periodical?
volume?
date?
page numbers?

Is it here at the B.Y.U. library? (See the Periodicals and Serials Catalog.)

22. In June, 1974, the Social Sciences and Humanities Index split into two separate indexes.

What are the names of these two indexes? (See the red and green binders on the top shelf above the Social Sciences and

Humanities Index on the General Reference index tables.)

23. The Wilson Company published several other indexes which are scholarly and subject oriented.

Look at Education Index at the General Reference index tables. Compare it to the other indexes.

Does it look familiar?

What subjects are in this index? Any author entries? (See the prefatory note.)

Who publishes this index?

24. There are indexes in General Reference which index 19th century periodicals. 19th Century Reader's Guide indexes periodicals from 1890-1900.

Pooles Index, a difficult index to use, indexes 19th century periodicals, 1802-1906. This is all you will need to know about these indexes at this time.

25. Now, go to the first floor to the social science index tables.

Look at the later editions of Public Affairs Information Service. (PAIS) This index is limited to the social sciences and finance but it is very broad in its coverage.

How is PAIS arranged? (subject, author, title?) You need go no farther than the preface to find the answer.

In reading the preface, what forms other than periodicals are indexed in PAIS?

Are there any foreign materials included in PAIS?

26. Where is the "Key to Abbreviations," the "Key to Periodical References," the "Directory of Publishers and Organizations," and the "List of Publications" found?

27. Although PAIS is not published by the Wilson Company what similarities do you find in arrangement? (What position in the column are the subheadings found?)

Go behind you on the other side of the table to the Business Periodicals Index.

28. The Business Periodicals Index began publication in 1958. Prior to that time it was the Industrial Arts Index.

Who published Business Periodicals Index?

What does this indicate?

29. How is it arranged?

What subjects are indexed? (preface?)

Locate a citation. Is the periodical in the library? Give the title and the call number.

Thus far we have covered the General Reference indexes, and the main indexes on the first floor. But we have not seen any indexes for science and technology. Go to the 2nd fllor index tables. Locate the Applied Science and Technology Index and the Biological and Agricultural Index.

30. Both of these indexes are published by the Wilson Company and are thus basically the same in format as the others.

Look at these indexes briefly.
What subjects are indexed in Applied Science and Technology Index?

What subjects are indexed in the other?

(Be able to differentiate between physical sciences and the life sciences.)

Pick a sample topic from one of these indexes. Follow the same procedure as before.

As you can see there are many more indexes and abstracts in the Science Reference collection. Browse these tables to see if any of them might apply to your specific interests.

Now to complete our survey of periodical indexes, go to Level 5 and look at the Art Index and the Music Index.

31. By whom is Art Index published?

How is it arranged?

Are any foreign periodicals included in this index? (See the preface.)

Look at the sample entries under the "explanatory notes" section of the preface. What does the sub-heading "reproductions" refer to?

Can you identify the parts to the individual citation in this index?

(Notice the light blue unbound volumes at the end of the Art Indexes. These are the uncumulated and most recent issues. The same type of uncumulated materials will apply to the other indexes.)

32. Briefly look at Music Index.

What do you notice as the main difference between the appearance of citations in Art Index and Music Index?

Can you still identify the different parts of the citation?

The next section of the study guide is shorter and will help you in negotiating the newspaper and book indexes. The book indexes are designed to help you locate specific information which is published within various books of a composite nature. The book review indexes will help you to locate reviews which have been written on fiction and non-fiction books.

33. The indexes at which we have looked so far do not cover newspapers. Look at New York Times Index. (General Reference)

How many volumes do you find for the 1973 edition of this index?

34. The preface tells you how to use the New York Times Index.

How is it alphabetized?

How does one find the date, page, and column reference?

What form does this reference take?

35. Look at vol. 1 of the 1973 New York Times Index.
Find Brigham Young University.
Notice the subject. The title. The date, page, and column. (directly after the title.)

Example: Ag 26, 63:4 August 26, page 63, column 4.

36. The New York Times Index has subject access only. It is a complete newspaper. It records verbatim many of the President's speeches etc. Very useful for any topic.

37. Another Wilson index which helps one to locate reviews which others have written on fiction and non-fiction books which are published within a certain year, is the Book Review Digest.

Read the prefatory note of a recent volume.

How is this index arranged? (author, title, subject?)

The main part is arranged by author. If you knew only the title, how would you find the reviews?

38. Look at the 1972 volume of Book Review Digest.
Find the author, Harrington, Michael.

What is the title of his work?

How many pages does it have?

What is it about? (See the brief summary directly below)

In what sources or periodicals do some reviews appear?

Read an excerpt from a review. Notice the title of the periodical, the volume, date, etc, immediately after the excerpt.

39. Does the Book Review Digest excerpt key quotes from the reviews or merely summarize their essence?

40. Look again at the citation in # 38.

In which periodicals are these reviews found? (Name only three)

Name the volume, date, pages, of one review in a periodical.

Is it in the B. Y. U. library?

41. To reiterate, suppose you only knew the title. How would you find the proper information you needed?

For your own use, you may wish to compare Book Review Digest with Book Review Index. (next to Book Review Digest on the shelf.)
You will find no quotations in Book Review Index.

42. You may be interested in finding biographical information, that is, information on living or deceased people. Look at Biography Index.

Who is the publisher?

43. Read the preface.

What types of publications are indexed in Biography Index? (books, periodicals, etc.?

44. Biography Index indexes currently published magazines and books. Does this mean that only living persons appear in the index? (Martin Luther? Brigham Young?)

45. Reader's Guide indexes the same periodicals as Biography Index; it is also more current. But in what way is Biography Index superior to Reader's Guide? (See # 43 and # 44.)

46. Look at a few citations in Biography Index.

Is the form familiar?

How does a periodical citation differ from a book citation? (Look at vol. 9, page 369. See Joseph, 1840-1904. Nez Perce Chief, for a sample of a book citation.)

47. To locate a periocial one would look in the B.Y.U. Periodicals and Serials Catalog. How do you find a book?

48. Now, the Essay and General Literature Index is an author and subject index published by H. W. Wilson Co. It is an index to essays and works of a composite nature. Authors of every age and nationality are included, although only 20th century books are indexed.

Read the preface.

49. How is it arranged?

What sub-headings are used under each author's name? (About & About Individual Works.)

50. Look at a citation under Ernest Hemingway.

Can you identify the author of the essay?

title of the essay?

author of the book In which the essay is found?

the book In which the essay is found?

the pages on which the essay is found within the book?

51. Find the "List of books indexed" in the back of EGLI. (Essay and General Literature Index)

What information is available there that is not found in the regular citation?

Summary

As you worked in sequence through each section of this study guide you have learned the following.

1. Reader's Guide can be used as a prototype for other indexes to periodical literature. If you know Reader's Guide you will know how to use the other indexes.

2. One must ALWAYS read the preface to learn about the use of a particular index.

3. Reader's Guide indexes popular, general periodicals. The other indexes are more scholarly and discipline oriented.

4. One needs to learn the subjects which are indexed in each index.

5. The New York Times Index is the best index for newspapers. If one learns to use it, he can use the London Times Index as well.

6. The Book Review Digest leads one to reviews on fiction and non-fiction. It gives key quotes.

7. Biography Index can be used for biographical information. It indexes both books and periodicals.

8. EGLI is important to locate specific essays compiled in book form by another author.

9. Finally, the B.Y.U. Periodicals and Serials Catalog lists all periodical holdings, in alphabetical order, in the B.Y.U. Lee Library.

APPENDIX B

Post-Test

1. Which one is not a Wilson Index?

   a. Reader's Guide
   b. Biography Index
   c. PAIS
   d. Applied Science and Technology Index

2. Indexes books and periodicals

   a. Biography Index
   b. Reader's Guide
   c. Social Sciences and Humanities Index
   d. New York Times Index

3. Book Review Digest

   a. lists authors only
   b. gives key quotes of reviews
   c. has a subject and title index
   d. all of the above
   e. b & c of the above
   f. none of the above

4. Social Sciences and Humanities Index

   a. used to be Industrial Arts Index
   b. indexes popular periodicals
   c. replaced International Index
   d. indexes the physical sciences

5. Indexes short stories that appear in magazines, by title.

   a. Library Literature
   b. Music Index
   c. New York Times Index
   d. Biography Index
   e. Reader's Guide

Match the topics by marking the letter of the appropriate index on the answer sheet.

a. Applied Science and Technology Index
b. Business Periodicals Index
c. Biological and Agricultural Index
d. Education Index
e. Biography Index
f. Art Index
g. EGLI
h. Reader's Guide
i. International Index
j. Social Sciences and Humanities Index
a. New York Times Index
b. Book Review Digest
c. PAIS
d. Poole's Index

6. An article about the artist Picasso

7. An article dealing with 1974 business trends

8. Author of a scholarly magazine article on the author Charles Dickens published in 1935

9. Author of an essay written about Charles Dickens

10. Newspaper account of F.D.R.'s third election to the presidency.

11. An article in a popular magazine on drugs.

12. The "Absurdity of Specialization," an article about the advantages of a general education.

13. The author of an article on nuclear science.

14. Article on the life of David O. McKay (Not in Reader's Guide)

15. Information of the U. S. Government and its relations with Europe.

16. Review of Ken Kesey's One Flew Over the Cuckoo's Nest.

17. Article on the war of 1812 written at the time of the war.

18. In using oneof the periodical indexes you find in one citation the abbreviation J. Am. Folk. As a skillful researcher, to decipher the riddle you would consult:

a. a dictionary
b. prefatory pages of the index
c. an abbreviations dictionary
d. Periodicals and Serials Catalog
e. None of the above

19. The symbol + in a periodical index citation means:

    a. look further for the correct citation
    b. stop here and go no farther
    c. the pages are missing in this issue
    d. the article is continued on further pages in the magazine
    e. none of the above

20. The Periodicals and Serials Catalog is:

    a. a periodical index
    b. a master list of locations and holding of the periodical collections
    c. an alphabetical list of all items in the card catalog
    d. a master list of periodical articles by subject and author
    e. a catalog for ordering and purchasing periodicals

Questions 21-30 are to be marked either True or False (T or F; 1 or 2)

21. New York Times Index is the only newspaper index

22. Education Index is a Wilson Publication

23. Biography Index is limited to biographical material from periodicals

24. Poole's Index covers magazines of the 19th century

25. Reader's Guide indexes scholarly periodicals

26. A list of periodicals indexed will be found in the front of most periodical indexes.

27. The abbreviation INC in the Periodicals and Serials Catalog stands for "including"

28. The Periodicals and Serials Catalog tells you the location of a periodical

29. International Index changed its name in 1965 to Art Index

30. PAIS indexes government documents

The following is a sample citation from Reader's Guide. Mark the appropriate letter questions 31-37.

EDUCATION
A -Your Teen-Ager and his education. R. H. Roach. - B
C - il. D - Sr. Schol. E - 46:68-70 - F Ja '68 - G

31.	Date	34.	Pages	37.	Author
32.	Title of the article	35.	Periodical		
33.	Volume	36.	Illustrated		

The following is a sample citation from New York Times Index. Follow the same procedure as before.

A - BONIN ISLANDS
B - Residents reaction to pending return of islands to Japan mixed. C - S 6, D - 49: E - 3 (S 6, 49:3)

38. Subject
39. Page
40. Date
41. Title
42. Column

The following is a sample citation from the Periodicals and Serials Catalog

American Potato Journal
635.2105 Am35 Level 2
vol. 15 - 1938-
INC: v. 15, 20
Lack: v. 34-36

43. T - F
The library still receives this periodical

44. T - F
Volumes 15 and 20 are complete in the library's holdings

45. T - F
This journal is found in the science reference collection

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